REMARKS

Claims 1-52 are pending. Claims 1-9, 17, 19, 20 and 22-52 were rejected under 35 U.S.C. § 102. Claims 10-16, 18 and 21 were objected to as dependent on a rejected claim. Claims 17 and 19 have been amended. Claims 53 and 54 have been added. Reconsideration and allowance of Claims 1-54 is requested.

Rejection of Claims under 35 U.S.C. § 102

In the Office Action, Claims 1-9, 17, 19, 20 and 22-52 were rejected under 35 U.S.C. § 102 as being anticipated by Dimitrova et al. (U.S. Patent No. 6,100,941).

As discussed in the Response to Office Action dated October 9, 2007 (hereinafter, the first Office Action response), Dimitrova et al. teach an invention regarding commercial detection (i.e., detection in a set of visual recording data of a segment that corresponds to recorded visual content of a particular type), while the invention of the present application concerns identification of a blank segment that does not correspond to recorded visual content in a set of visual recording data. As discussed in the first Office Action response, Dimitrova et al. do not teach or make obvious identification of a blank segment as in Applicants' invention, even more so the particular ways of implementing such blank segment identification recited in Applicants' claims.

In response to Applicants' remarks in the first Office Action response, the present Office Action states:

> The Applicant argues that Dimitrova et al. fails to disclose a blank segment detector or the identification of a blank segment that does not correspond to recorded visual content. The Examiner respectfully disagrees. Dimitrova et al. discloses in col. 18, lines 36-52 detecting a sequence of blank frames, thereby detecting a blank segment. Dimitrova et al. further goes on to state the sequence must be at least 10-30 frames long. Therefore, Dimitrova et al. meets the claim limitations and therefore the rejection is maintained.

Dimitrova et al. teach, at column 18, lines 36-52 of the Dimitrova et al. patent:

> vii Black frame detection.--As stated above, commercials are usually preceded and followed by a black frame. The present apparatus will use the optimized black frame detection method related above to more accurately determine if a black frame has occurred. If it has, there is a high probability that a commercial precedes or follows it. Generally, many black frames are used to precede a commercial, but only one is needed to indicate where a possible start and end of a commercial occurs.
>
> viii. Black frame and cuts--If a high cut rate is detected, this technique has the apparatus look back four minutes (7200 frames) for a sequence of black frames. The sequence must be at least 10-30 frames long. Generally, the time between commercials is greater than four minutes. If there is a high cut rate, and there was a sequence of black frames within the last four minutes, the high cut rate sequence is probably within a commercial.

While it may seem that the teaching of Dimitrova et al. regarding detection of a sequence of black frames constitutes identification of a blank segment as in Applicants' invention, that is not the case, as explained in more detail below.

Each of Applicants' claims recites receiving input regarding blank frame determinations for a plurality of frames of visual recording data and evaluating a characteristic of the plurality

of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content. Dimitrova et al. do not teach, even in column 18, lines 36-52 of the Dimitrova et al. patent, receiving input regarding blank frame determinations for frames of visual recording data and evaluating a characteristic of those frames of visual recording data to determine whether those frames of visual recording data constitute a blank segment, as in Applicants' invention. Assuming arguendo that the detection of black frames taught by Dimitrova et al. constitutes blank frame determinations as in Applicants' invention, those determinations are not used in determining whether a set of frames of visual recording data constitutes a blank segment, but, instead, are used in determining the location of a commercial in a visual recording. Though Dimitrova et al. teach identifying the occurrence of a sequence of black frames, that is not, even assuming arguendo that such is an identification of a sequence of blank frames, identification of a blank segment as in Applicants' invention. In fact, a sequence of blank frames may not be identified as a blank segment by Applicants' invention. For instance, in Applicants' invention, a sequence of blank frames that is sufficiently short may not be considered a blank segment. This may, in fact, be the case with respect to the particular teaching of Dimitrova et al. newly identified in the present Office Action (column 18, lines 36-52 of the Dimitrova et al. patent). Dimitrova et al. teach that, for use in their commercial

detection invention, a sequence of black frames must be at least 10-30 frames long to indicate the location of a commercial. However, Applicants' invention may be implemented so that a sequence of 10-30 frames may be sufficiently short (note, for example, that if a visual recording was acquired at 30 frames/sec., such a sequence would be only 1/3 to 1 second long) that, even if the sequence consists entirely of black frames (or another type or types of blank frame), the sequence is not considered a blank segment. Moreover, as will be more readily apparent from the discussion below of particular implementations of blank segment identification in accordance with Applicants' invention, a blank segment may be identified by Applicants' invention that includes frames that are not blank frames and/or that includes blank frames that stand alone and are not part of a sequence of blank frames.

As indicated above, in Applicants' invention, identification of the occurrence of a blank segment is not simply a matter of identifying the occurrence of a sequence of blank frames, but, rather, evaluating a characteristic of frames of visual recording data for which blank frame determinations have been made. Applicants' specification describes some examples of what such evaluation can entail.

For example, Applicants' specification describes, at page 20, line 7 to page 21, line 10, implementations of identification of the occurrence of a blank segment including blank frames that all (or almost all) represent an image that is all (or nearly all) one color. As described in Applicants'

specification, such blank segment identification may require evaluation of a predetermined minimum number of frames (e.g., a sequence of at least 30 frames). As further described in Applicants' specification, such blank segment detection may require that a specified number of frames in a sequence of frames (e.g., greater than or equal to 95% of the frames in the sequence) have been determined to be blank frames of the same color. As also described in Applicants' specification, such blank segment detection may require that the blank frames of the same color in a sequence of frames be sufficiently similar in color to one another (e.g., when each pixel color component can have a numerical value between 0 and 255, the variance of the average over an entire frame of each color component for the frames identified as blank frames of the same color must be less than 10). As can be readily appreciated, not every sequence of frames of the same color would be identified as a blank segment when the invention is implemented in the particular ways described in Applicants' specification.

Or, for example, Applicants' specification describes, at page 21, line 32 to page 23, line 15, implementations of identification of the occurrence of a blank segment including blank frames that all (or almost all) represent an image that is all (or nearly all) snow-static. As described in Applicants' specification, such blank segment detection may require evaluation of a predetermined minimum number of frames (e.g., a sequence of at least 30 frames) and that a specified number of frames in a sequence of frames (e.g., greater than or equal

to 95% of the frames in the sequence) have been determined to be snow-static frames. As also described in Applicants' specification, such blank segment detection may require that 1) a specified number of frames in a sequence of frames (e.g., at least 5) have been identified as snow-static frames, 2) a specified number of frames in a sequence of frames (e.g., greater than or equal to 95% of the frames in the sequence) have been identified as black frames or both identified as, and subsequently confirmed to be, snow-static frames, and 3) the black frames be sufficiently similar in color to one another (e.g., when each pixel color component can have a numerical value between 0 and 255, the variance of the average over an entire frame of each color component for the frames identified as black frames must be less than 10). As can be readily appreciated, not every sequence of snow-static frames would be identified as a blank segment when the invention is implemented in the particular ways described in Applicants' specification.

Even though Dimitrova et al. teach detection of a sequence of black frames, Dimitrova et al. do not teach that detection of a sequence of black frames constitutes detection of a blank segment (rather, such a sequence may be an indication of the location of a commercial). Even more to the point, Dimitrova et al. do not teach, even in column 18, lines 36-52 of the Dimitrova et al. patent, receiving input regarding blank frame determinations for frames of visual recording data and evaluating a characteristic of those frames of visual recording data to determine whether those frames of visual recording data

constitute a blank segment (i.e., a segment that does not correspond to recorded visual content), as in Applicants' invention. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce blank segment identification as in Applicants' invention, given the completely different goals of the invention taught by Dimitrova et al. (detection of commercials, i.e., detection of segments of a visual recording that correspond to recorded visual content of a particular type) and the invention of the present application (detection of blank segments, i.e., detection of segments of a visual recording that do not correspond to recorded visual content).

In view of the foregoing, Applicants submit that each of the claims of the application is patentable over the teaching of Dimitrova et al. Additionally, as discussed further below, each of those claims is also patentable over the teaching of Dimitrova et al. for additional reasons related to the particular ways of identifying blank segments recited in those claims.

Regarding Claim 1, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a plurality of blank frame detectors, each blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the plurality of blank frame detectors regarding a plurality of frames of visual recording data to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 – col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 1 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a plurality of blank frame detectors, each blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the plurality of blank frame detectors regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content.

As indicated above, in response to Applicants' remarks in the first Office Action response, the present Office Action states:

> The Applicant argues that Dimitrova et al. fails to disclose a blank segment detector or the identification of a blank segment that does not correspond to recorded visual content. The Examiner respectfully disagrees. Dimitrova et al. discloses in col. 18, lines 36-52 detecting a sequence of blank frames, thereby detecting a blank segment. Dimitrova et al. further goes on to state the sequence must be at least 10-30 frames long. Therefore, Dimitrova et al. meets the claim limitations and therefore the rejection is maintained.

Even assuming arguendo that the detection of a sequence of black frames described by Dimitrova et al. at column 18, lines 36-52 of the Dimitrova et al. patent constitutes a blank segment detector that identifies a blank segment that does not correspond to recorded visual content, as contended in the Office Action, that still does not teach a "blank segment detector adapted to receive input from [a] plurality of blank frame detectors regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames

of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment" (emphasis added), as recited in Claim 1. Nor do the other sections of the Dimitrova et al. patent identified in the Office Action in support of the rejection of Claim 1 (or, it appears, any other part of the Dimitrova et al. patent) teach such a blank segment detector. For example, though, in the other sections of the Dimitrova et al. patent identified in the Office Action, Dimitrova et al. teach the identification of unicolor frames, Dimitrova et al. do not teach that the identification of such frames can be used in the identification of a blank segment, alone or in combination with detection of any other type of frame, such as a black frame, and so do not teach a "blank segment detector adapted to receive input from [a] plurality of blank frame detectors regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment," as recited in Claim 1. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such a blank segment detector, given the completely different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 1 is allowable over the teaching of Dimitrova et al. Each of Claims 2-7 depends, either directly or indirectly, on Claim 1 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 8, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame and, if so, whether the blank frame is of a first type or of a second type that is different from the first type (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67, col. 18, lines 36-52).

Claim 8 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame, and, if so, whether the blank frame is of a first type or of a second type that is different from the first type; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content.

Dimitrova et al. do not teach a "blank segment detector adapted to receive input from [a] blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment," where the blank frame

detector is adapted to identify blank frames of multiple types, as recited in Claim 8. Even assuming arguendo that the detection of black frames and detection of unicolor frames described by Dimitrova et al. constitutes detection of blank frames of two different types, Dimitrova et al. do not teach that such identification of frames can be used in the identification of a blank segment. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such blank segment identification, given the completely different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 8 is allowable over the teaching of Dimitrova et al.

Regarding Claim 9, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame representing an image that is all or nearly all one color (Figs. 2 and 5; col. 5, lines 47-65), wherein the blank frame detector further comprises: means for determining if, for each color component, the numerical value of a specified number of the pixels of the frame is within a specified magnitude of the average numerical value of that color component for all of the pixels of the frame; and means for determining if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components, wherein: if, for each color component, the numerical value of the specified number of the pixels of the frame is within the specified magnitude of the average numerical value of that color component for all of the pixels of the frame, and if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship

with the average numerical value of one or more other color components, then the frame is a blank frame (Fig. 6A, col. 6, lines 40-52); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 9 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame representing an image that is all or nearly all one color, wherein the blank frame detector further comprises:
>
> means for determining if, for each color component, the numerical value of a specified number of the pixels of the frame is within a specified magnitude of the average numerical value of that color component for all of the pixels of the frame; and
>
> means for determining if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components, wherein:
>
> if, for each color component, the numerical value of the specified number of the pixels of the frame is within the specified magnitude of the average numerical value of that color component for all of the pixels of the frame, and if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components, then the frame is a blank frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of

> visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content.

Dimitrova et al. do not appear to teach or make obvious the particular characteristics of the blank frame detector recited in Claim 9. In the first Office Action response, Applicants stated:

> Neither FIG. 6A nor the associated description in the Dimitrova et al. patent appear to describe a blank frame detector which makes use of color information for individual pixels to determine whether a frame is a blank frame. Instead, FIG. 6A is part of a flow chart showing an overview of a procedure for keyframe filtering which makes use of block signatures derived for blocks in a frame (see column 6, lines 3-6 of the Dimitrova et al. patent).

In response to Applicants' remarks in the first Office Action response, the present Office Action states that "Dimitrova et al. discloses in col. 6, lines 40-52 disclosing that if 90% of the blocks or 1782 blocks in the same interval the image is considered to be unicolor." Since a block is not a pixel, but, rather, a collection of pixels, this appears to support, rather than contradict, Applicants' contention in the first Office Action response. Column 6, lines 40-52 of the Dimitrova et al. patent states:

> A quick method to filter out unicolor frames occurs between steps 602 and 604, relying only on the DC signature. Each DC signature 704 is compared and a count is kept of each specific DC signature which occurs, (step 660) i.e., each DC signature represents into which interval the DC value falls, so in this example, eight different DC signatures exist). If, for example, 90% of the blocks or 1782 blocks (0.9 * 330 macroblocks * 6 blocks) fall in the same interval (have the same DC signature), the image is considered unicolor (step 662) and the frame is discarded or filtered out from frame memory (step 664).

> Alternatively, separate counts could be kept for each type of block (Cr, Cb . . .) and each separate count compared to an associated threshold.

As indicated in the first Office Action response, neither FIG. 6A nor the associated description in the Dimitrova et al. patent (and, in particular, the above-quoted section of the Dimitrova et al. patent) appear to teach or make obvious, as recited in Claim 9, a blank frame detector which makes use of color information for individual pixels to determine whether a frame is a blank frame. More particularly, neither FIG. 6A nor the associated description in the Dimitrova et al. patent teach or make obvious the particular determinations recited in Claim 9 that are used in making blank frame determinations by the apparatus recited in Claim 9.

In view of the foregoing, Claim 9 is allowable over the teaching of Dimitrova et al.

Regarding Claim 17, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65), wherein the blank frame detector further comprises: means for determining if a specified maximum variation from pure gray at each pixel is less than a specified magnitude; means for determining if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components; and means for determining if the vertical and horizontal correlation coefficients are within corresponding specified ranges and/or have a specified relationship with one another, wherein: if the specified maximum variation from pure gray at each pixel is less than a specified magnitude, the average numerical value of each color component for all of the

pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components, and the vertical and horizontal correlation coefficients are within corresponding specified ranges and/or have a specified relationship with one another, then the frame is a blank frame (Figs. 6A and 6B; col. 6, lines 40-52); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 17 recites:

Apparatus for identifying a blank segment in a set of visual recording data, comprising:

a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a snow-static frame, wherein the blank frame detector further comprises:

means for determining if a specified maximum variation from pure gray at each pixel is less than a specified magnitude;

means for determining if the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components; and

means for determining if the vertical and horizontal correlation coefficients are within corresponding specified ranges and/or have a specified relationship with one another, wherein:

if the specified maximum variation from pure gray at each pixel is less than a specified magnitude, the average numerical value of each color component for all of the pixels of the frame is within a specified range and/or has a specified relationship with the average numerical value of one or more other color components, and the vertical and horizontal correlation coefficients are within corresponding specified ranges

> and/or have a specified relationship with one another, then the frame is a snow-static frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content.

Claim 17 has been amended to indicate that the blank frame detector of that claim is adapted to identify snow-static frames (see, e.g., page 16, lines 9-24 of Applicants' specification). As discussed in more detail below with respect to Claim 19, Dimitrova et al. do not teach or make obvious a blank frame detector that identifies snow-static frames.

Further, Dimitrova et al. do not appear to teach or make obvious the particular characteristics of the blank frame detector recited in Claim 17. In the first Office Action response, Applicants stated:

> [N]either FIGS. 6A and 6B nor the associated description in the Dimitrova et al. patent appear to describe a blank frame detector which makes use of color information for individual pixels, or vertical and horizontal correlation coefficients, to determine whether a frame is a blank frame. Instead, FIGS. 6A and 6B are a flow chart showing an overview of a procedure for keyframe filtering which makes use of block signatures derived for blocks in a frame (see column 6, lines 3-6 of the Dimitrova et al. patent).

The contention in the present Office Action that Dimitrova et al. do teach a blank frame detector which makes use of color information for individual pixels has been addressed above. The remarks in the previous Office Action response regarding the lack of teaching of Dimitrova et al. concerning a blank frame detector

which makes use of vertical and horizontal correlation coefficients have not been addressed in the previous Office Action. The Examiner is therefore requested to identify such teaching in the Dimitrova et al. patent.

In view of the foregoing, Claim 17 is allowable over the teaching of Dimitrova et al.

Regarding Claim 19, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a snow-static frame (Figs. 2 and 5; col. 5, lines 47-65); a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52); and means for evaluating, when a frame is determined to be a snow-static frame, the temporal correlation coefficient over a specified window of frames of visual recording data that includes the snow-static frame to either confirm or reject the determination that the frame is a snow static frame (Fig. 5 - step 551 - a snow-static frame is unicolor and therefore can be considered a black frame).

Claim 19 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a snow static frame;
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a

> blank segment that does not correspond to recorded visual content; and
>
> means for evaluating, when a frame is determined to be a snow-static frame, the temporal correlation coefficient over a specified window of frames of visual recording data that includes the snow-static frame to either confirm or reject the determination that the frame is a snow static frame.

As pointed out in the first Office Action response, Dimitrova et al. do not teach or make obvious a "blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a snow-static frame," as recited in Claim 19. Though Dimitrova et al. teach determining whether a frame is a static frame, Dimitrova et al. used "static frame" to refer to a frame that corresponds to recorded visual content and that is part of a sequence of frames in which little or no motion occurs (see, e.g., column 13, lines 12-28; column 17, lines 35-36; and column 19, lines 1-9 of the Dimitrova et al. patent), while Applicants use "snow-static frame" to refer to a blank frame that does not correspond to recorded visual content, but, instead, includes the well-known display of static that is commonly thought to look like snow (see, e.g., page 15, line 34 to page 16, line 3 of Applicants' specification). The present Office Action states that "a snow-static frame would be considered to be unicolor and therefore would fall under the same category as the blank frame." That is incorrect: a snow-static frame is not a unicolor frame. As one indication of that, note the different methods described in Applicants' specification for detecting frames of a single color (see, e.g., page 3, line 24 to page 4, line 11 of Applicants'

specification) and detecting snow-static frames (see, e.g., page 4, lines 12-26 of Applicants' specification).

As also pointed out in the first Office Action response, Dimitrova et al. also do not teach or make obvious "means for evaluating, when a frame is determined to be a snow-static frame, the temporal correlation coefficient over a specified window of frames of visual recording data that includes the snow-static frame to either confirm or reject the determination that the frame is a snow static frame," as also recited in Claim 19. The Office Action contends that this is taught by step 551 of FIG. 5. However, that is not the case. Dimitrova et al. teach, at column 5, lines 58-60 of the Dimitrova et al. patent, that "[i]n step S51 [sic], cut detector thread 82 determines whether the frame is black frame or not." First, a black frame is not a snow-static frame. Second, even if a black frame was a snow-static frame, step 551 concerns determining whether a frame is a black frame or not, not confirming or rejecting a previous determination that a frame is a black frame (the above-quoted element of Claim 19 concerns confirming or rejecting a determination that a frame is a snow-static frame).

In view of the foregoing, Claim 19 is allowable over the teaching of Dimitrova et al. Claim 20 depends on Claim 19 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 22, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual

recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a plurality of blank segment detectors, each blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 22 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame; and
>
> a plurality of blank segment detectors, each blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content.

Even assuming arguendo that the detection of a sequence of black frames described by Dimitrova et al. at column 18, lines 36-52 of the Dimitrova et al. patent constitutes a blank segment detector that identifies a blank segment that does not correspond to recorded visual content, as contended in the Office Action, Dimitrova et al. do not teach the use of any other blank segment detector, either that makes use of detection of black frames or, as discussed above, that makes use of detection of any other type of frame, and, consequently, do not teach "a plurality of blank segment detectors," as recited in Claim 22. Nor would it be obvious to modify the teaching of Dimitrova et al. to make use of multiple blank segment detectors, given the completely

different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 22 is allowable over the teaching of Dimitrova et al. Claim 23 depends on Claim 22 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 24, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content and that includes one or more blank frames of a first type and one or more blank frames of a second type that is different from the first type (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52)

Claim 24 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content and that includes one or more blank frames of a first type and one or more blank frames of a second type that is different from the first type.

Dimitrova et al. do not teach a "blank segment detector adapted to ... determine whether [a] plurality of frames of visual recording data is a blank segment ... that includes one or more blank frames of a first type and one or more blank frames of a second type that is different from the first type," as recited in Claim 24. Even assuming arguendo that the detection of black frames and detection of unicolor frames described by Dimitrova et al. constitutes detection of blank frames of two different types, Dimitrova et al. do not teach that such identification of frames can be used in the identification of a blank segment including both types of frames. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such blank segment identification, given the completely different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 24 is allowable over the teaching of Dimitrova et al. Claim 25 depends on Claim 24 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 26, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content that is all or

nearly all one color (col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 26 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content and that is all or nearly all one color.

Even though Dimitrova et al. teach the identification of unicolor frames, Dimitrova et al. do not teach that the identification of such frames can be used in the identification of a blank segment (and, in particular, a blank segment that is all or nearly all one color), and so do not teach a "blank segment detector adapted to receive input from [a] blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content and that is all or nearly all one color," as recited in Claim 26. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such blank segment identification, given the completely different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 26 is allowable over the teaching of Dimitrova et al. Each of Claims 27-33 depends, either directly or indirectly, on Claim 26 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 34, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content that that is all or nearly all snow-static (Figs. 2, 5, and 6A; col. 5, lines 47-65; col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 34 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a snow-static frame; and
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content and that is all or nearly all snow-static.

As discussed above with respect to Claim 19, Dimitrova et al. do not teach or make obvious a "blank frame detector adapted to evaluate a frame of visual recording data to determine whether

the frame of visual recording data is a snow-static frame", as recited in Claim 34, and, therefore, do not teach or make obvious a "blank segment detector adapted to ... determine whether [a] plurality of frames of visual recording data is a blank segment ... that is all or nearly all snow-static," as recited in Claim 34.

In view of the foregoing, Claim 34 is allowable over the teaching of Dimitrova et al. Each of Claims 35-38 depends, either directly or indirectly, on Claim 34 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 39, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); and a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content, wherein: the blank frame and blank segment determinations are made for successive frames of visual recording data as the frames of visual recording data are acquired or as the frames of visual recording data are being processed for another purpose (Figs. 2, 5 - step "553", and 6A; col. 5, lines 47-65; col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 39 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame; and

> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content, wherein:
>
> the blank frame and blank segment determinations are made for successive frames of visual recording data as the frames of visual recording data are acquired or as the frames of visual recording data are being processed for another purpose.

As discussed in more detail above, Dimitrova et al. do not teach determination of blank segments and therefore cannot teach "blank segment determinations ... made for successive frames of visual recording data as the frames of visual recording data are acquired or as the frames of visual recording data are being processed for another purpose," as recited in Claim 39. Moreover, even the commercial detection taught by Dimitrova et al. is not "made for successive frames of visual recording data as the frames of visual recording data are acquired or as the frames of visual recording data are being processed for another purpose," as recited in Claim 39. Instead, Dimitrova et al. teach, at column 15, lines 28-37 of the Dimitrova et al. patent:

> Commercial detection thread 86 will not become active unless some triggering event occurs. ... Generally, commercial detection thread 86 remains dormant until one of these triggers occurs. However, commercial detection thread 86 could be programmed to perform its analyses periodically (e.g. every minute) or not until the end of the entire program.

Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such blank segment determinations, given the completely different goals of the invention taught by Dimitrova

et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 39 is allowable over the teaching of Dimitrova et al. Each of Claims 40-44 depends, either directly or indirectly, on Claim 39 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 45, the Office Action stated:

> Dimitrova et al. discloses an apparatus for identifying a blank segment in a set of visual recording data, comprising: a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame (Figs. 2 and 5; col. 5, lines 47-65); a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of a plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content; and means for using the detection of one or more blank segments to identify one or more segment boundaries in the set of visual recording data, each segment boundary delineating a transition from a segment of one type to a segment of another type (Figs. 2, 5 - step "553", and 6A; col. 5, lines 47-65; col. 2, line 65 - col. 3, line 9; col. 13, lines 51-67; col. 18, lines 36-52).

Claim 45 recites:

> Apparatus for identifying a blank segment in a set of visual recording data, comprising:
>
> a blank frame detector, the blank frame detector adapted to evaluate a frame of visual recording data to determine whether the frame of visual recording data is a blank frame;
>
> a blank segment detector, the blank segment detector adapted to receive input from the blank frame detector regarding a plurality of frames of visual recording data and to evaluate a characteristic of the plurality of frames of visual recording data to determine whether the plurality of frames of visual recording data is a blank segment that does not correspond to recorded visual content; and

> means for using the detection of one or more blank segments to identify one or more segment boundaries in the set of visual recording data, each segment boundary delineating a transition from a segment of one type to a segment of another type.

As discussed in more detail above, Dimitrova et al. do not teach determination of blank segments and therefore cannot teach "means for using the detection of one or more blank segments to identify one or more segment boundaries in the set of visual recording data," as recited in Claim 39. Nor would it be obvious to modify the teaching of Dimitrova et al. to produce such segment boundary identification, given the completely different goals of the invention taught by Dimitrova et al. and the invention of the present application, as discussed above.

In view of the foregoing, Claim 45 is allowable over the teaching of Dimitrova et al. Each of Claims 46-50 depends, either directly or indirectly, on Claim 45 and is therefore allowable as dependent on an allowable claim.

Regarding Claim 51, the Office Action stated "this is a method claim corresponding to the apparatus claim 8" and "[t]herefore, claim 51 is analyzed and rejected as previously discussed with respect to claim 8."

Claim 51 is allowable over the teaching of Dimitrova et al. for the same reasons as given above with respect to Claim 8.

Regarding Claim 52, the Office Action stated "this is a computer readable medium claim corresponding to the apparatus claim 8" and "[t]herefore, claim 52 is analyzed and rejected as previously discussed with respect to claim 8."

Claim 52 is allowable over the teaching of Dimitrova et al. for the same reasons as given above with respect to Claim 8.

In view of the foregoing, it is requested that the rejection of Claims 1-9, 17, 19, 20 and 22-52 under 35 U.S.C. § 102 be withdrawn.

Objection to Claims

In the Office Action, Claims 10-16, 18 and 21 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include the limitations of the base claim and any intervening claims.

Claim 9 is allowable over the teaching of Dimitrova et al. for the reasons given above. Each of Claims 10-16 depends, either directly or indirectly, on Claim 9 and is therefore allowable as dependent on an allowable claim.

Claim 17 is allowable over the teaching of Dimitrova et al. for the reasons given above. Claim 18 depends on Claim 17 and is therefore allowable as dependent on an allowable claim.

Claim 19 is allowable over the teaching of Dimitrova et al. for the reasons given above. Claim 21 depends, indirectly, on Claim 19 and is therefore allowable as dependent on an allowable claim.

New Claims

Claims 53 and 54 have been added. Support for Claim 53 can be found in Claims 41 and 8, as filed, as well as corresponding description in Applicants' specification. Support for Claim 54 can be found in Claims 41 and 24, as filed, as well as corresponding description in Applicants' specification.

Each of Claims 53 and 54 depends indirectly on Claim 39 and is therefore allowable as dependent on an allowable claim. Claims 53 and 54 are also allowable for reasons as given above with respect to Claim 8 and Claim 24, respectively. Allowance of Claims 53 and 54 is requested.

CONCLUSION

Claims 1-52 were pending. Claims 1-9, 17, 19, 20 and 22-52 were rejected. Claims 10-16, 18 and 21 were objected to. Claims 17 and 19 have been amended. Claims 53 and 54 have been added. In view of the foregoing, it is requested that Claims 1-54 be allowed. If the Examiner wants to discuss any aspect of this application, the Examiner is invited to telephone Applicants' undersigned attorney at (408) 945-9912.

I hereby certify that this correspondence is being transmitted via facsimile to the U.S. Patent and Trademark Office, facsimile number (571) 273-8300, on April 2, 2008.

4-2-08 David R. Graham
Date Signature

Respectfully submitted,

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